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So Many SCN-Resistant Varieties: Which Should You Use?

By Greg Tylka, Department of Plant Pathology

Soybean varieties that are resistant to the soybean cyst nematode (SCN) are a critical management tool for the pest. In general, SCN-resistant varieties produce greater yields and result in lower SCN numbers at the end of the season than non-resistant (susceptible) varieties.

Resistance to SCN is conferred by several genes that are transferred into soybean varieties from breeding lines with names like Peking, PI 88788, and Hartwig. There are hundreds of SCN-resistant soybean varieties available to Iowa growers (see figure below and the publication, Soybean cyst nematode-resistant soybean varieties for Iowa – PM 1649, for a listing of individual varieties).

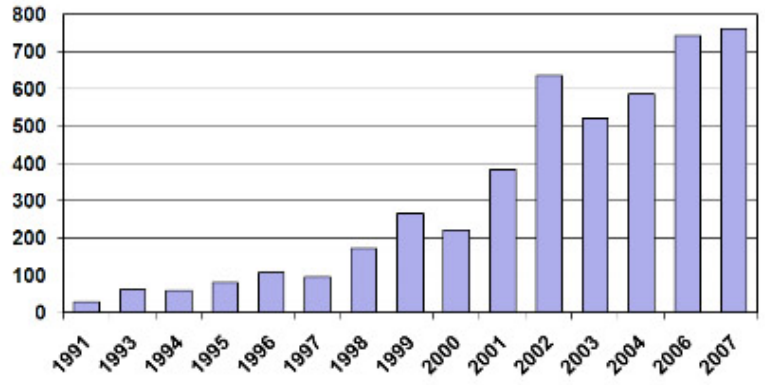
Not all SCN-resistant varieties yield equally well in SCN-infested fields, nor do they suppress SCN reproduction to the same extent. SCN resistance is conferred by several genes. Soybean varieties bred from a single resistance source, like PI 88788, do not necessarily possess all of the SCN resistance genes that are in PI 88788. Also, the SCN resistance genes from the different breeding lines vary in effectiveness in controlling the different SCN populations that infest Iowa fields. And no doubt, yield and SCN control provided by the SCN-resistant soybean varieties can vary in response to many other biotic and abiotic factors in field environments.

There's discussion about how to select SCN-resistant varieties. Should you consider SCN reproduction data from the field as well as yield data? Should you look for single-site yield data from locations near you, yield data averaged from across the state, or yield data averaged across multiple years? And, should you consider yield data from small plots or large strip trials or both?

One way to go about selecting high-yielding SCN-resistant soybean varieties that keep SCN numbers in check is to look for data from as many different reliable sources as possible, including university variety trials and strip trials conducted by co-ops, grain elevators, and seed companies. High-yielding varieties don't always control SCN population densities the best, so pay attention to information about SCN reproduction in the field as well as yield. It is very difficult to reduce SCN numbers in a field once they develop to high levels, so it is important to consider how well SCN-resistant varieties control SCN numbers in order to maintain the productivity of fields for soybean production for years to come.

Iowa State University conducts SCN-resistant variety evaluation experiments throughout the state that measure both yield and control of the nematode. The work is supported by fees paid by the seed companies and also by soybean checkoff funds from the Iowa Soybean Association. Results of the experiments are published online and also in print. Print copies of the results are available by contacting Carla Harris in the Iowa State University Department of Plant Pathology at (515) 294-1741.

No matter what sources of information you consider when picking SCN-resistant varieties, be sure to look for SCN-resistant varieties that yield consistently well in numerous SCN-infested fields (yield data from noninfested fields are not useful). Also look for varieties that consistently decrease SCN population densities or keep the SCN numbers in check in multiple fields. Growing resistant varieties with these characteristics should ensure that soybeans can be grown profitably in SCN-infested fields for many years to come.



Number of SCN-resistant soybean varieties available to Iowa growers 1991 – 2007.

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